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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,522	10/24/2003	Raymond T. Westfall	EES-2	9849
1473	7590	11/29/2004	EXAMINER	
FISH & NEAVE LLP 1251 AVENUE OF THE AMERICAS 50TH FLOOR NEW YORK, NY 10020-1105			STULTZ, JESSICA T	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/692,522

Applicant(s)

WESTFALL ET AL.

Examiner

Jessica T Stultz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-100 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-100 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-34, 39-58, 61-66, and 70-78. Claims 1-34 and 70-78 are drawn to a method of modulating the refractive index of an ion insertion layer in an optical device, classified in class 359, subclass 265. Claims 39-58 and 61-66 are being grouped together with the method claims since these claims are drawn to an iono-refractive device or an apparatus to modulate the refractive index of an ion insertion layer and could be searched together with claims 1-34 and 70-78, without any undue burden on the examiner.
- II. Claims 67-69 and 35-38. Claims 67-69 are drawn to an apparatus for modulating the refractive index of an ion insertion layer in an optical device, classified in class 359, subclass 266. Claims 35-38 are being grouped together with the apparatus claims since these claims are drawn to a method of modulating the refractive index of an ion insertion layer and could be searched together with claims 67-69 without any undue burden on the examiner.
- III. Claims 59-60, drawn to an iono-refractive device for modulating the refractive index of an ion insertion layer, classified in class 359, subclass 273.
- IV. Claims 79-84, drawn to an etalon filter for modulating the refractive index of an ion insertion layer, classified in class 359, subclass 260.
- V. Claims 85-100. Claims 85 and 87-100 are drawn to an optical device for modulating the refractive index of an ion insertion layer, classified in class 359,

subclass 267. Claims 86 is being grouped together with the apparatus claims since this claim is drawn to a method of modulating the refractive index of an ion insertion layer and could be searched together with claim 85 without any undue burden on the examiner.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to used to practice another and materially different process. Specifically, the apparatus for modulating the refractive index of an ion insertion layer can be used to practice a process wherein the dielectric constant of the ion insertion layer does not change specifically as disclosed in claims 1-34 and 70-78, wherein the real portion of the constant and the imaginary portion of the constant both change so that the absolute difference between the imaginary portion is less than the difference between the real portion.

Inventions III and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process for using the product as claimed can be practiced with another materially different product. Specifically, the method for modulating a refractive

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index of an ion insertion layer can be practiced without the step of illuminating the ion insertion layer with light having a sub-bandgap energy.

Inventions IV and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process for using the product as claimed can be practiced with another materially different product. Specifically, the method for modulating a refractive index of an ion insertion layer can be practiced without the use of an etalon filter, partially reflecting mirrors, or a controller.

Inventions V and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process for using the product as claimed can be practiced with another materially different product. Specifically, the method for modulating a refractive index of an ion insertion layer can be practiced without the use of an etalon filter, partially reflecting mirrors, or a controller.

Inventions II and III are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and

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materially different apparatus (MPEP § 806.05(g)). In this case apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product. Specifically, the apparatus can make a different product wherein the dielectric constant of the ion insertion layer does not change specifically as disclosed in claims 59-60, wherein the real portion of the constant changes by more than about 0.1 and the imaginary portion of the constant change by less than about 0.2 in response to an electric field.

Inventions II and IV are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product. Specifically, the apparatus can make a different product that does not include partially reflecting mirrors, an etalon filter, or a controller.

Inventions II and V are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product. Specifically, the apparatus can make a different product, which does not include partially reflecting mirrors, an etalon filter, or a controller.

Inventions IV and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the etalon filter does not require that the dielectric constant of the ion insertion layer does not change specifically as disclosed in claims 59-60, wherein the real portion of the constant changes by more than about 0.1 and the imaginary portion of the constant change by less than about 0.2 in response to an electric field. The subcombination has separate utility such as being used in a tunable optical device, as evidence in claim 87.

Inventions V and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the optical device does not require illuminating the ion insertion layer with a light having sub-bandgap energy. Regarding claims 85-86, the subcombination has separate utility such as being used in a tunable optical device, as evidence in claim 87. Regarding claims 87-100, the subcombination has separate utility such as being used in an etalon filter, as evidence in claim 79.

Inventions V and IV are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require

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the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the optical devices do not require that the controller apply an electric field specifically while not substantially altering the transmissivity. The subcombination has separate utility such as being used in a device wherein the real portion of the constant does not change by more than about 0.1 and the imaginary portion of the constant change by less than about 0.2 in response to an electric field.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for any one group is not required for any other group, restriction for examination purposes as indicated is proper.

This application contains claims directed to the following patentably distinct species of the claimed invention: Group Va, claims 85-86, drawn to a species of optical devices for modulating the refractive index of an ion insertion layer specifically including a pair of partially reflecting mirrors, and a controller, Group Vb, claims 87-92, drawn to species of optical devices for modulating the refractive index of an ion insertion layer specifically including a tunable device having a substrate and a waveguide formed on the substrate to guide a propagating light beam, and Group Vc, claims 93-100, drawn to a species of optical devices for modulating the refractive index of an ion insertion layer specifically including a laser that outputs either a



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plurality of wavelengths or an output wavelength that has an optical mode at the surface of the laser.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, none of the claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

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Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica T Stultz whose telephone number is (571) 272-2339. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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November 16, 2004

  
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PRIMARY EXAMINER